

# Workshop on Proposed ARB Fuel Test Method Updates

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El Monte, California

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# Agenda

- Phase 3 RFG History
- New Methods Being Proposed
- Existing Methods Being Updated
- Existing Method Being Removed
- Costs
- Timeline

# Fuel Regulations: Recent History

Phase 3 RFG regulations effective 12/31/02

Oxygenates other than ethanol prohibited

New specifications added:

Prohibited oxygenates (trace level)

Benzene & aromatics in ethanol

Olefins in ethanol

Sulfur in ethanol

# Dealing with New Specifications

## Problems:

- No test method for trace oxygenates
- No methods for aromatics, olefins
- Testing is performed on denaturant
- No downstream testing possible

## Proposed solutions:

- New method for trace oxygenates
- Add option to test ethanol with new methods
- Enable downstream analysis and enforcement

# Proposed New Methods

These methods will allow ARB and stakeholders to determine compliance with Phase 3 RFG regulations.

D7754-11: trace oxygenates in gasoline

D7347-07: olefins in ethanol

D7576-10: aromatics in ethanol

# D7754-11: Trace Oxygenates in Gasoline

Same analytes as D4815

Interlaboratory LOQ: 50 ppm

Regulatory limit: 500 ppm

GC/FID with Low-ox column, valve or switch

Current oxygenate instrument can be upgraded

# D7347-11: Olefins in Ethanol

Interlaboratory LOQ: 0.1 vol%

Regulatory limit: 0.5 vol%

SFC/FID with PVA column, 2 valves

Gasoline olefin instrument can be upgraded

# D7576-10: Benzene and Total Aromatics in Ethanol

Parameter	Method LOQ	Regulatory Limit
Benzene	0.01 vol%	0.06 vol%
Total Aromatics	0.25 vol%	1.7 vol%

Same instrument as benzene and total aromatics in gasoline – no upgrade required



# Updates to Methods

ARB periodically updates test methods for:

- Corrections of errors
- Streamlined procedures
- Improvements to instrumentation
- Improved precision statements
- New information added
- Newer methods are more accessible
- Removal of obsolete methods

# Proposed Updates

D6550-10: olefins in gasoline

ARB-specific information added

D4815-09: oxygenates (ethanol) in gasoline

Corrections to previous version

D5186-09: aromatics in diesel

Streamlined QC procedures

D5580-07: aromatics in gasoline

New precision statement

# D5580-07 Reproducibility

Recommendation: use 2007 R values rather than keep existing values in regulation

For benzene, 2007 R is tighter at  $>0.70$  vol% and looser at  $<0.50$  vol%

For total aromatics, 2007 R is tighter at  $<28.5$  vol% and looser at  $>28.5$  vol%

# Removal of D2622-94

Two designated methods for sulfur in gasoline:  
D2622-94 (WDXRF) and D5453-93 (UV-F)

D2622-94 LOQ is 10 ppm sulfur, and has  
poor precision

WSPA survey indicates that no refiner is  
using D2622.

# Estimated Costs

ARB regulations do not require that producers and blenders test their fuel. Assumptions:

- Those who currently test will continue

- Those who do not currently test won't start

New methods:

- D7754: \$5,000 to upgrade existing instrument

- D7347: \$1,000 to upgrade gasoline instrument

- D7576: no upgrade to gasoline instrument

Updated methods carry no additional cost

# Projected Timeline

July 2012	Public Workshop
September 2012	Draft ISOR
December 2012	Publish Board package
January 2013	Board Hearing

# Contact Information

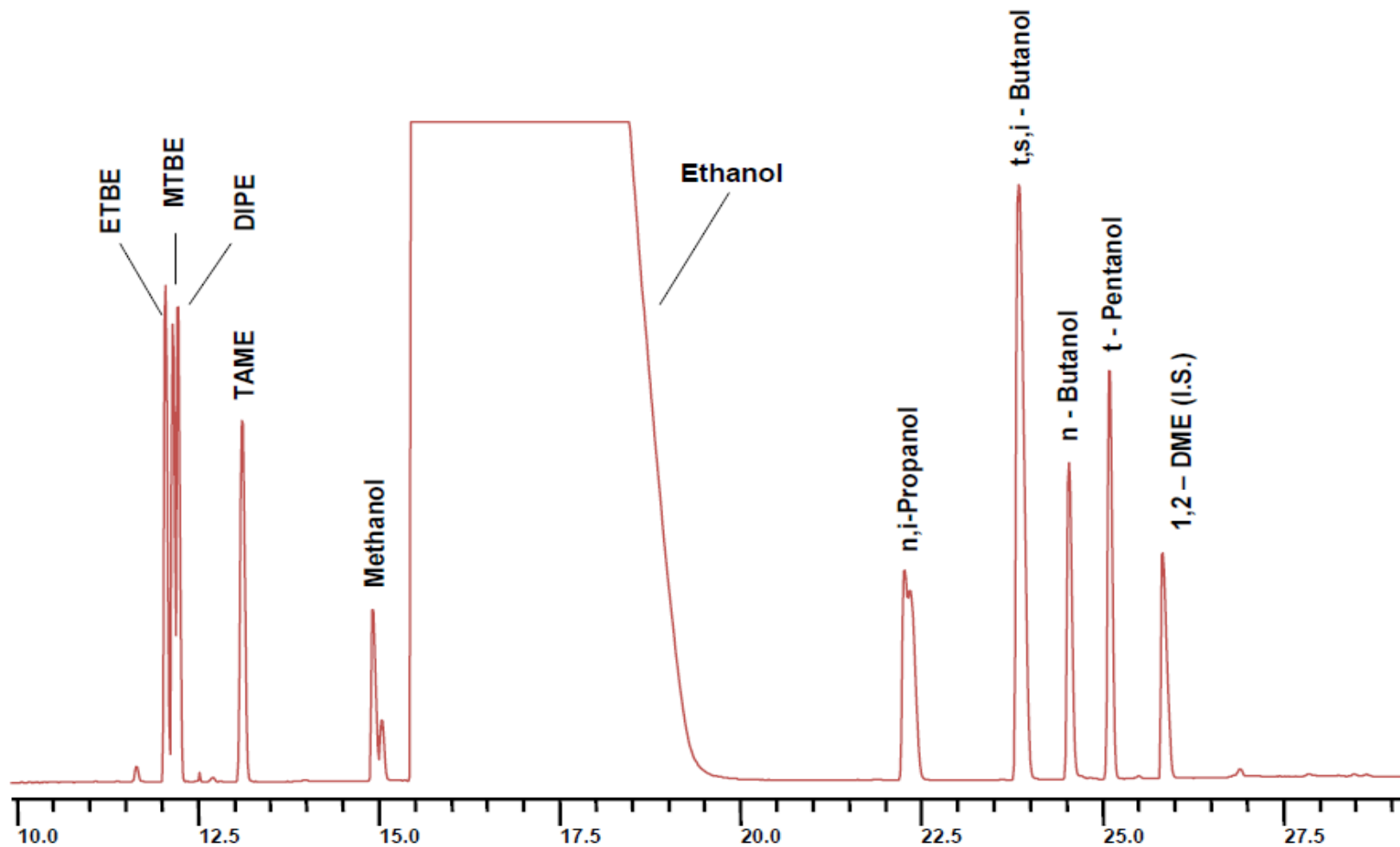
For questions or comments, please contact:

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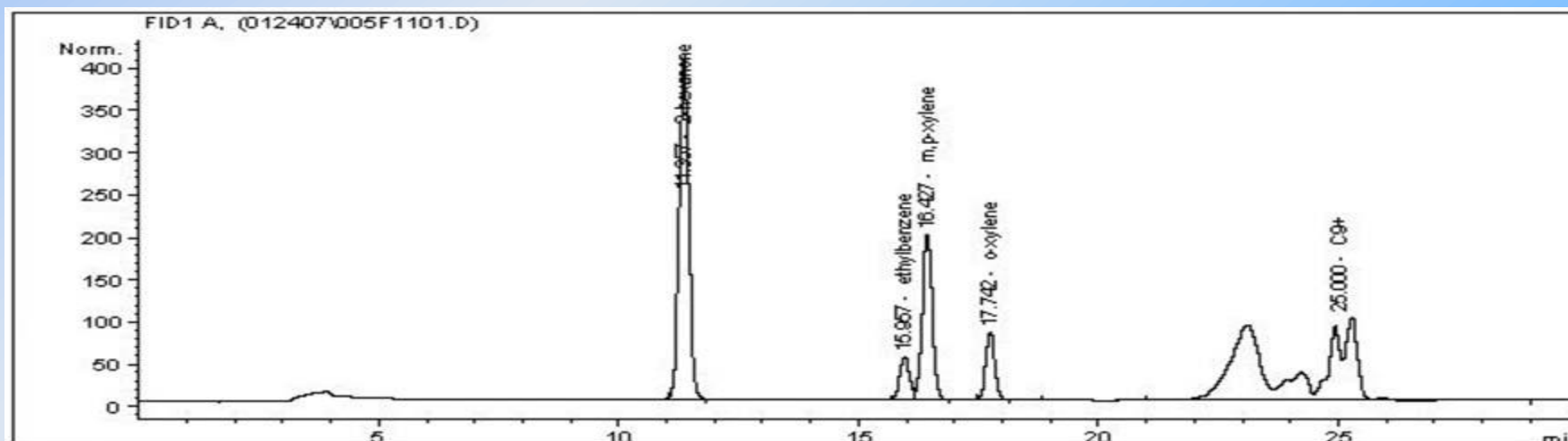
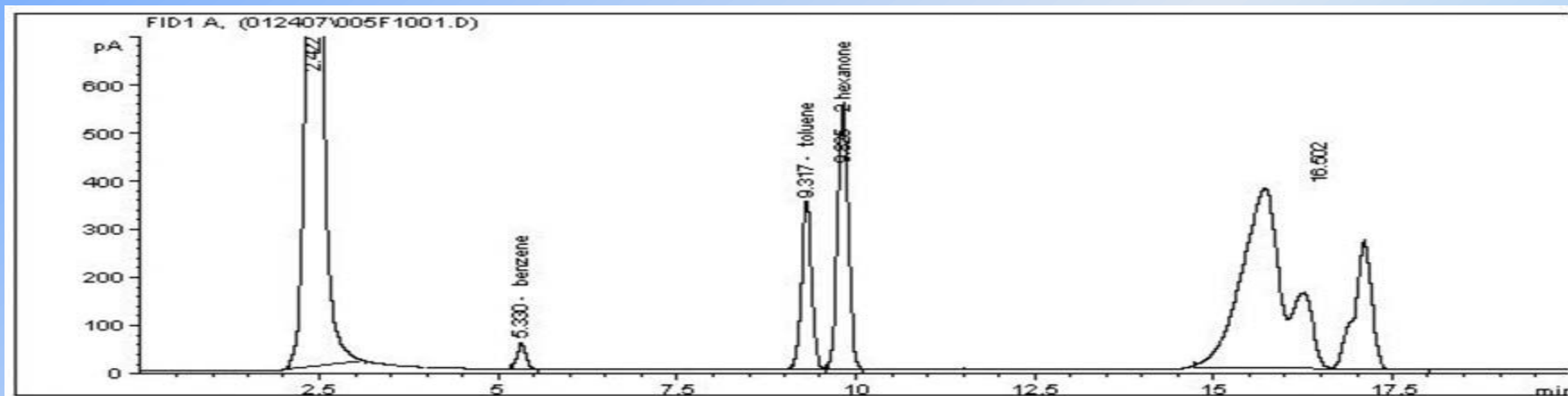
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# Sample D7754 Chromatogram





# D7576 Sample Chromatograms



# Sample D7347 Chromatogram

